Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) A turbine component comprising:

an integral ring of single crystal turbine airfoils;

wherein each airfoil has a defined primary (radial) and secondary (axial) crystal orientation; and

a defined crystallographic mismatch between adjacent single crystal turbine airfoils.

2. (Original) The turbine component of claim 1, wherein the turbine component has anisotropic properties.

3. (Original) The turbine component of claim 1, wherein grain boundary misorientations between adjacent single crystal turbine airfoils are as high as about 18.0 degrees.

4. (Original) The turbine component of claim 1, wherein the turbine component comprises a nozzle.

5. (Original) The turbine component of claim 1, wherein the turbine component comprises a bladed turbine disk.

6. (Original) The turbine component of claim 1, wherein the turbine component comprises a thermal barrier coating.

7. (Original) The turbine component of claim 5, wherein a primary [100] orientation of each single crystal blade is approximately aligned with the radius of the bladed ring.

8. (Original) The turbine component of claim 5, wherein a secondary [001] orientation of at each single crystal turbine airfoil is approximately parallel to the trailing edge of each single crystal turbine airfoil.

9. (Original) A turbine component comprising:

an integral ring of single crystal turbine airfoils;

wherein the average crystallographic orientation changes between adjacent single crystal turbine airfoils by 360/n degrees, where *n* is the number of single crystal turbine airfoils.

10. (Original) The turbine component of claim 9, wherein the turbine component has anisotropic properties.

11. (Original) The turbine component of claim 9, wherein the change in crystallographic orientation, between adjacent single crystal airfoils, does not exceed three degrees, in either direction, from the average crystallographic orientation of 360/n.

12. (Original) The turbine component of claim 9, wherein the turbine component comprises a nozzle.

13. (Original) The turbine component of claim 9, wherein the turbine component comprises a bladed turbine disk.

14. (Original) The turbine component of claim 9, wherein the turbine component comprises a thermal barrier coating.

15. (Original) The turbine component of claim 13, wherein a primary [100] orientation of each single crystal blade is approximately aligned with the radius of the bladed disk.

16. (Original) The turbine component of claim 13, wherein a secondary [001] orientation of each single crystal turbine airfoil is approximately parallel to the trailing edge of the single crystal turbine airfoil.

17. (Original) The turbine component of claim 13, wherein a secondary [001] orientation of the airfoils is approximately parallel to the integral ring axis.

18. (Original) The turbine component of claim 13, wherein a primary [100] orientation of each single crystal turbine airfoil is aligned with the radius of the bladed ring.

19. (Original) The turbine component of claim 16, wherein the secondary [001] orientation of each single crystal turbine airfoil is parallel to the trailing edge of the single crystal turbine airfoil.

20. (Original) A turbine component comprising:

an integral ring of single crystal turbine airfoils;

wherein the crystallographic orientation changes between adjacent single crystal turbine airfoils alternate from zero degrees to approximately 360/(0.5n) degrees, where *n* is the number of single crystal turbine airfoils.

21. (Original) The turbine component of claim 20, wherein the turbine component has anisotropic properties.

22. (Original) The turbine component of claim 20, wherein the turbine component comprises a nozzle.

23. (Original) The turbine component of claim 20, wherein the turbine component comprises a bladed turbine disk.

24. (Original) The turbine component of claim 20, wherein the turbine component comprises a thermal barrier coating.

25. (Original) The turbine component of claim 23, wherein a primary [100] orientation of each single crystal blade is approximately aligned with the radius of the bladed disk.

26. (Original) The turbine component of claim 23, wherein a secondary [001] orientation of each single crystal turbine airfoil is approximately parallel to the trailing edge of the single crystal turbine airfoil.

27. (Original) The turbine component of claim 23, wherein a secondary [001] orientation of the airfoils is approximately parallel to the integral ring axis.

28. (Currently Amended) An integral ring of single crystal turbine airfoils manufactured by:

(a) positioning doubly oriented single crystal superalloy seed crystals into a desired orientation into a chilled base of an investment casting mold;

(b) preheating the portion of the mold containing a pour cup, gating, blade ring pattern, and grain bridges, to a temperature above the liquidus of the single crystal superalloy;

(c) maintaining the chilled surface of the single crystal superalloy seed crystals at a temperature below the solidus temperature of the superalloy;

(d) casting into the investment casting mold molten superalloy at a temperature above the liquidus temperature of the superalloy;

(e) establishing a thermal gradient, such that temperature increases from said superalloy seed crystals through the molten superalloy; and

(f) moving the thermal gradient vertically through the investment casting mold to directionally solidify the superalloy within the integral ring in the axial direction, <u>wherein adjacent airfoils have grain boundary misorientations as high as about 18.0° and</u> wherein the integral ring comprises:

an inner rim,

a plurality of airfoils integral with the inner rim, and

an outer rim integral with the inner rim and with the plurality of airfoils.

29. (Previously Presented) The integral ring of single crystal turbine airfoils of claim 28, wherein the integral ring of single crystal turbine airfoils has anisotropic properties.

30. (Previously Presented) An integral ring of single crystal turbine airfoils manufactured by:

(a) positioning doubly oriented single crystal superalloy seed crystals into a desired orientation into a chilled base of an investment casting mold;

(b) preheating the portion of the mold containing a pour cup, gating, blade ring pattern, and grain bridges, to a temperature above the liquidus of the single crystal superalloy;

(c) maintaining the chilled surface of the single crystal superalloy seed crystals at a temperature below the solidus temperature of the superalloy;

(d) casting into the investment casting mold molten superalloy at a temperature above the liquidus temperature of the superalloy;

(e) establishing a thermal gradient, such that temperature increases from said superalloy seed crystals through the molten superalloy; and

(f) moving the thermal gradient vertically through the investment casting mold to directionally solidify the superalloy within the integral ring in the axial direction, where adjacent airfoils have grain boundary misorientations as high as about 18.0 degrees.

31. (Canceled)

32. (Previously Presented) The integral ring of single crystal turbine airfoils of claim 30, wherein the single crystal superalloy composition comprises of 61.41 weight percent nickel, 9.3 weight percent cobalt, 5.0 weight percent chromium, 8.6 weight percent tungsten, 4.5 weight percent tantalum, 0.7 weight percent molybdenum, 3.0 percent rhenium, 5.7 weight percent aluminum, 0.7 weight percent titanium, 1.0 weight percent hafnium, 0.07 weight percent carbon, 0.015 weight percent boron, and 0.005 weight percent zirconium.

33-40. (Canceled)

41. (Currently Amended) ~~The~~ A turbine component ~~of claim 40~~, ~~wherein~~ comprising:

a turbine disk; and

a single crystal integral ring comprising nickel or a nickel-based superalloy, wherein said single crystal integral ring is diffusion bonded to an outer portion of said turbine disk, wherein said single crystal integral ring comprises:

an inner rim,

a plurality of airfoils integral with said inner rim, the average crystallographic orientation between adjacent members of said plurality of airfoils ~~varies~~ varying by 360/n degrees, where~~in~~ *n* is the number of said ~~plurality of~~ airfoils, and

~~said single crystal integral ring comprises nickel or a nickel-based superalloy.~~

an outer rim integral with said inner rim and with said plurality of airfoils.

42. (Previously Presented) A turbine component, comprising:

a single crystal integral ring including:

an inner rim, and

a plurality of airfoils, each of said plurality of airfoils formed integrally with said inner rim, wherein:

each of said plurality of airfoils is grown from a separate seed crystal.

43. (Previously Presented) The turbine component of claim 42, further comprising an outer rim, said outer rim integral with said plurality of airfoils and with said inner rim, wherein:

each of said outer rim, said inner rim, and said plurality of airfoils comprises a nickel-based superalloy.